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Having an adult child in the US, physical functioning, and unmet needs for care among older Mexican adults

Jacqueline M. Torres^a, Kara E. Rudolph^b, Oleg Sofrygin^c, Rebeca Wong^d, Louise C. Walter^{e,f}, and M. Maria Glymour^a

^aDepartment of Epidemiology & Biostatistics, School of Medicine. UC San Francisco, San Francisco, CA

^bDepartment of Emergency Medicine, UC Davis, Sacramento, CA

^cDivision of Research, Kaiser Permanente, Oakland, CA

^dSealy Center on Aging, University of Texas – Medical Branch, Galveston, TX

^eDivision of Geriatrics, School of Medicine, UC San Francisco, San Francisco, CA

^fDivision of Geriatrics, Veterans Affairs Medical Center, San Francisco, CA

Abstract

Background: Migration of adult children may impact the health of aging parents who remain in low- and middle-income countries. Prior studies have uncovered mixed associations between adult child migration status and physical functioning of older parents; none to our knowledge has examined the impact on unmet caregiving needs.

Methods: Data come from a population-based study of Mexican adults >50 years old. We analyzed 11806 respondents surveyed over an 11-year period. We used longitudinal targeted maximum likelihood estimation to estimate associations between having an adult child in the US and lower-body functional limitations, and both needs and unmet needs for assistance with basic or instrumental activities of daily living (ADLs/IADLs).

Results: For women, having an adult child in the US at baseline and 2-year follow-up was associated with fewer lower body functional limitations (marginal risk difference (RD): -0.14, 95% CI: -0.26, -0.01) and fewer ADLs/IADLs (RD: -0.08, 95% CI: -0.16, -0.001) at 2-year follow-up. Having an adult child in the US at all three study waves was associated with more lower-body functional limitations at 11-year follow-up (RD: 0.04, 95% CI: 0.01, 0.06). Having an adult child in the US was associated with a higher prevalence of unmet needs for assistance at two (RD: 0.13, 95% CI: 0.04, 0.21) and 11-year follow-up for women (RD: 0.07, 95% CI: -0.02, 0.15) and 11-year follow-up for men (RD: 0.08, 95% CI: 0.00, 0.16).

550 16th Street, San Francisco, CA 94143, (415) 317 – 3261, Jacqueline.Torres@ucsf.edu.

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The data are publicly available for download at mhasweb.org; sample code for longitudinal Targeted Maximum Likelihood Estimation and sensitivity analysis are provided in the supplemental files. Further code (e.g. to set up all of the variables, for multiple imputation procedures) is available upon request.

Conclusion: Having an adult child in the US had either null or modestly positive associations with physical functioning, but substantial adverse associations with unmet caregiving needs for a cohort of older adults in Mexico.

Keywords

Social Epidemiology; Longitudinal Study; Targeted Maximum Likelihood Estimation; Aging; Activities of Daily Living; Mexico

Introduction:

Many low- and middle-income countries are experiencing rapid aging and declining family size¹, generating concern about who will care for older adults in these settings.² This concern is heightened in countries with high rates of out-migration. As of 2017, 258 million individuals live outside of the country in which they were born, and the majority are young and middle-aged adults.³ Family-member migration may result in the loss of critical support for older adults who remain in places of origin, with potential impacts on physical wellbeing and needs for assistance in later life.

Research regarding the impact of family-member out-migration on older adults who remain in places of origin has been largely focused on mental health, with few studies on physical functioning.^{4,5} Findings have also been extremely mixed, with negative, positive, and null associations reported.^{4–14} Scholars suggest that family-member migration may result in poorer health for older adults who remain, possibly due to the loss of family members who might have otherwise provided social and instrumental support necessary for coping with life challenges.^{6,13,15} Reduced support may impact older adults' health-promoting behaviors (e.g. physical activity) and may contribute to greater risk for chronic disease and cognitive decline,^{16–19} in turn influencing physical functioning.^{20–24} Conversely, family members who migrate may contribute to improvements in the health of older adults who remain by way of remitting money,^{4,5,7,10} which may support the treatment of chronic conditions, with potentially positive influences on physical functioning.^{10,22}

Extant research on family member migration and the physical functioning of older adults has also been largely limited to cross-sectional or short-term follow-up studies^{4,5}. Moreover, while cross-sectional studies have examined the impact of adult child migration on financial transfers and overall hours of care provided to elderly parents,^{25,26} no studies to our knowledge have examined whether or not family-member migration is associated with unmet caregiving needs among older adults who remain in low and middle-income settings. In the present study, we evaluate longitudinal associations between having an adult child in the US and physical functioning and unmet caregiving needs among a population-based prospective cohort of middle-aged and older adults in Mexico followed over an 11-year period. In the analyses, we correctly adjust for time-varying confounders affected by prior exposure²⁷ and employ a doubly robust estimation approach that allows for data-adaptive model fitting.^{28–30}

MATERIALS AND METHODS

Study Population

We use data from three waves of the Mexican Health and Aging Study (MHAS), a national survey of Mexican adults aged ≥ 50 years.³¹ Briefly, the MHAS selected households with adults ≥ 50 years in 2001 that were previously included in the nationally representative 2000 Mexican Employment Survey (ENE-2000). Households from Mexican states with historically high US out-migration were oversampled; households in remaining states were sampled with probability proportionate to size. Within each household, a target respondent was interviewed along with spouses or cohabitating partners. Proxy respondents were interviewed when target respondents could not respond on their own. The response rate was 91.8% at baseline (2001), 93.3% at 2-year follow-up (2003), and 88.1% at 11-year follow-up (2012). A total of 15186 respondents were surveyed at baseline. We excluded proxy respondents, spouses < 50 years, and respondents who had no living children, yielding a baseline analytic sample of 11806 (see flowchart in eAppendix Figure 1). This analysis was deemed exempt by the Institutional Review Board at the University of California San Francisco.

Study Measures

Adult Child Migration Status: Adult child migration status was derived from a household roster that queried respondents at each wave about the location of each non-resident child. We constructed binary indicators of whether or not respondents had at least one adult child living in the US at each wave.

Physical Functioning: Lower-body functional limitations were measured with eight questions regarding perceived difficulty with: running one mile, walking one or several blocks, climbing one or several flights of stairs, stooping, kneeling, or crouching. For each item, we contrasted those who had “no trouble” with the activity to those who reported they “have trouble, can’t do, or don’t do” the activity. Because of the high prevalence of reported difficulty with running a mile (75% of women and 55% of men), we consider our primary outcome of interest to be the sum of the remaining seven lower-body functional limitations, but report associations using the sum of all eight lower-body functional limitations in eAppendix Table 3.

Needs for assistance with activities of daily living (ADLs) were captured by asking respondents whether, because of a health problem, they needed assistance with the following basic activities: walking across a room, getting in and out of bed, eating, bathing, toileting, or dressing. Respondents who indicated they did not need help were contrasted with those who reported they need help, can’t do, or don’t do the activity or, in the case of walking across the room and getting out of bed, that they used assistive equipment to help them (e.g. a wheelchair). Respondents were similarly asked about need for assistance, because of a health problem, with instrumental activities of daily living (IADLs), including with managing money, taking medications, preparing a hot meal, or shopping for food. Basic activities and instrumental activities of daily living were summed to create a count of total needs for assistance (range: 0 – 10). We estimated models with continuous and binary

measures of no versus any lower-body functional limitations or needs for assistance, respectively.

Unmet Needs for Assistance

Respondents who indicated that they needed assistance with any activity of daily living were then asked if they received help with the given activity from a spouse or another person. We classified respondents who reported not receiving help from either a spouse or another person as having “unmet” need for assistance. We generated a binary indicator of any versus no unmet needs.

Covariates—We selected covariates that may have contributed to both family-member migration decisions and outcomes of interest. For example, factors like family economic status and family composition^{32–34} and macro-level factors such as community-level experience with US migration have been shown to influence migration decisions.^{35,36} Many of these same factors have been associated with physical functioning and related needs and unmet needs for assistance among older adults.^{37,38,39,40}

Time-invariant covariates include measures of baseline age in years, early life socio-economic status and health, and primary lifetime occupation. A time-invariant measure of prior US migration was included for men; few women reported prior US migration. Time-varying covariates included measures of cognitive function, depressive symptoms, number of self-reported chronic diseases, past-year health care utilization, health insurance status, monthly income, total household assets, employment status, marital status, total number of living children, total number of grandchildren, , whether or not respondents had a child living in another city in Mexico, whether or not an adult child lived in the same household, and whether the respondent could count on support from community members. Definitions for select covariates in eAppendix Table 1.

Statistical Analyses—We implemented longitudinal targeted maximum likelihood estimation (longitudinal TMLE)^{28,30} to estimate wave-specific associations between having an adult child in the US and outcomes of interest. Briefly, longitudinal TMLE models the expected outcome via a sequence of nested regressions and uses wave-specific inverse probability of treatment and censoring weights to update the resulting estimates.^{28,29,41,42} Implementation entailed first separately estimating the expected outcome for each of the three study waves ($t = 1, 2, 3$) for different exposure regimes.^{28,29,41} Models follow from the Directed Acyclic Graph presented in Figure 1. For example, for models of any (versus no) lower-body functional limitations at the third study wave (2012, $t = 3$), we estimated the expected prevalence of having 1 lower-body functional limitation in 2012 for the following contrasting exposures of: 1) having at least one adult child migrant in 2001, 2003, and 2012 and 2) having no adult child migrants in 2001, 2003, or 2012, both conditional on a) time-invariant covariates, b) lagged time-varying covariates (including lagged functional limitations) from 2001 and 2003, and c) inclusion in the survey wave. There was only support in the data for contrasting stable regimes of adult child migration (i.e. having an adult child in the US at all waves compared to having no adult children in the US at any

waves); a relatively small percentage of respondents reported shifts in adult child migration status across the study waves.

The TMLE algorithm then updated these outcome models with cumulative inverse probability weights based on models of 1) exposure (i.e. having an adult child in the US) at each wave conditional on time-invariant covariates, lagged time-varying covariates, prior exposure, and inclusion in the survey wave, and 2) inclusion in survey wave conditional on time-invariant covariates, lagged time-varying covariates (including outcome values), and prior exposure. For analyses of lower-body functional limitations and activities of daily living, we estimated the probability of inclusion in the survey using separate models to account for attrition by the second and third follow-up waves due to 1) death, 2) having a proxy interview, or 3) loss-to-follow-up. We grouped a very small category of respondents who no longer had living children at follow-up waves with those who had a proxy interview. For analyses of unmet needs, we also generated attrition models to account for exclusion due to reporting less than one need for assistance with activities of daily living at baseline and follow-up waves. Cumulative inverse probability weights (IPWs) were truncated at the 99th percentile.⁴³

We estimated exposure, attrition, and outcome models via SuperLearner.⁴⁴ For models of continuous outcomes, the weighted convex combination of machine-learning algorithms with the lowest cross-validated mean squared error was selected among a library of three possible machine learning algorithms – LASSO,⁴⁵ gradient boosting machine,^{46,47} and generalized linear models. Due to computational demands, we only used the gradient boosting machine algorithm for treatment and attrition models for analyses of binary outcomes. Estimation was performed using *stremr*^{30,48} and *sl3*⁴⁹ packages for R.⁵⁰

We implemented multiple imputation procedures to address missing data using the *Amelia* package for R.⁵¹ We created ten multiply imputed datasets for the baseline wave, and incorporated mean values from multiply imputed baseline models into the multiple imputation of time-varying measures at successive follow-up waves. We combined estimates using Rubin's rules.⁵²

Sensitivity Analyses

Despite including a large number of controls for respondent and family-level characteristics, we remained concerned about the potential for unmeasured confounders – particularly at the community or regional level – that might be driving both migration decisions and the health outcomes of older adults. In order to evaluate bias due to unobserved confounding, we calculated “e-values” for estimates whose 95% confidence intervals did not cross the null.^{53,54} E-values estimate the minimum strength of association between an unmeasured confounder and both adult child migration status and outcomes that would be required to shift observed estimates to the null, assuming the same size of association between unmeasured confounder and exposure and outcome, *ly*.^{53,54}

We additionally assessed the degree to which estimates might be biased by the exclusion of respondents who had interviews completed by proxy informants in the baseline analytic sample (*n* = 934 respondents who were otherwise eligible based on age and having at least

one living child). Proxies reported migration status of respondents' adult children *and* their needs for assistance with the six basic activities of daily living (ADLs) only. We used this information to calculate bias-corrected risk ratios with the `episensr` package for R.⁵⁵ Sample code for longitudinal TMLE and sensitivity analyses is included in the eAppendix.

RESULTS

At baseline, about a quarter of respondents reported having at least one adult child living in the US (Table 1). Nearly 70% of women and 52% of men reported at least one lower-body functional limitation and about 19% of women and 23% of men reported need for assistance with at least one activity of daily living at baseline. Of those with at least one need, 60% of women and 46% of men reported that they did not receive assistance with these needs at baseline. Additional descriptive characteristics are in eAppendix Table 2.

Adjusted marginal risk differences (RDs) are presented for each study wave. In the case of binary outcomes, these results can be interpreted as the expected prevalence of the outcome at a given study wave if respondents had an adult child US migrant at that wave and all prior study waves compared to the expected prevalence of the outcome if respondents had no adult children in the US during the same time points (i.e. current study wave and all prior study waves).⁴² For continuous outcomes, adjusted marginal risk differences can be interpreted as the expected average difference in the outcome (e.g. number of lower body functional limitations, number of needs for assistance with activities of daily living) for the same contrasts. Baseline results are included for completeness, although lagged time-varying covariates were not available for baseline models, and estimates from these models therefore remain confounded by these factors.

For women, having at least one adult child in the US at baseline and 2-year follow-up waves was associated with fewer lower-body functional limitations (RD: -0.14, 95% CI: -0.26, -0.01), fewer needs for assistance with activities of daily living (RD: -0.08, 95% CI: -0.16, -0.001) and lower expected prevalence of reporting need for assistance with at least one activity of daily living (RD: -0.03, 95% CI: -0.05, -0.01) compared to having no adult child in the US during these two study waves (Table 2).

The e-value for the association between having an adult child in the US and need for assistance with 1 activity of daily living suggests that the observed association could be explained away by an unmeasured confounder that was associated with both the exposure and the outcome by a risk ratio of 1.58, above and beyond the set of measured confounders; the lower bound of the 95% confidence interval of the observed association could be moved to include the null by an unmeasured confounder that was associated with both exposure and outcome by a risk ratio of 1.12 (i.e. the lower bound of the 95% CI of the e-value). E-values for other associations that do not cross the null are reported in results Tables 2 and 3.

In contrast, women with an adult child in the US across the entire study period were found to have a higher expected prevalence of 1 lower-body functional limitation at 11-year follow-up compared to their counterparts with no adult child in the US at any study wave (RD: 0.04, 95% CI: 0.01, 0.06). There were no associations between having an adult child in

the US and any measures of physical functioning among men. Findings were generally similar when using an eight-item measure of lower-body functional limitations that included the indicator of difficulty running a mile (Appendix Table C).

For women with at least one need for assistance for care, having an adult child in the US was associated with greater estimated prevalence of reporting at least one unmet need for assistance at two-year follow-up (RD: 0.13, 95% CI: 0.04, 0.21) and 11-year follow-up (RD: 0.07, 95% CI: -0.02, 0.15). For men with any need for assistance in the final survey wave, having an adult child in the US at all three study waves was associated with a greater estimated prevalence of unmet needs (RD: 0.08, 95% CI: 0.00, 0.16) compared to not having an adult child in the US at all three time points (Table 3, Figure 2).

Sensitivity analyses assessing bias due to the exclusion of proxy respondents from the baseline sample indicated similar observed and selection-bias adjusted risk ratios for the relationship between having an adult child in the US and 1 need for assistance with basic activities of daily living at baseline (eAppendix Table 4).

DISCUSSION

The present study used a doubly robust estimation approach to examine longitudinal associations between having an adult child in the US and physical functioning and unmet caregiving needs among middle-age and older adults in Mexico. This study extends prior work on adult child migration status and mental health, heart disease, and cognitive function among older Mexican adults,^{6,8,9} to examine physical functioning outcomes. In addition, while other studies have examined associations between adult child migration and financial and time contributions to older adults,²⁵ this is the first study, to our knowledge, that has quantified the impact on unmet caregiving needs. Finally, this research extends the primarily cross-sectional or short-term follow-up studies used in prior research to a large cohort followed over an 11-year period.

We found select modest associations between having an adult child in the US and physical functioning for women, although the direction of these associations was inconsistent by outcome (i.e. lower body functional limitations, needs for assistance with activities of daily living) and study wave. In particular, there were positive associations between having an adult child in the US and both measures of physical functioning at the two-year follow-up for women, which is consistent with two studies in other settings reporting that having an adult child migrant and was associated with better physical functioning among older adults who remain.^{4,5} These protective findings have been explained by economic transfers commonly made from migrant children to parents who remain in place,^{5,14,25} which may allow older adults to access treatment for underlying medical conditions^{10,56} and to reduce physically demanding work (e.g. in agriculture or domestic occupations),⁵ possibly contributing to improvements in perceived and/or actual physical functioning. For example, a study⁵ evaluating the impact of adult child out-migration on older adults in Moldova found that those with adult migrant children had higher incomes, spent fewer hours per work laboring in the family business or farm, and spent more time sleeping and engaged in leisure activities compared to those with no migrant children.

On the other hand, we observed adverse associations between having an adult child in the US across the entire study and lower-body functional limitations at the 11-year follow-up wave for women. It may be that the long-term – but not short-term -- absence of adult children had adverse consequences for women's physical functioning as they aged into older adulthood. On the other hand, these findings could be driven by unmeasured conditions or events that may have emerged during the 9-year gap between the second and third follow-up waves that may have also influenced exposure, outcome, and/or attrition, and may contribute to biased estimates of adverse long-run associations between adult child migration status and lower-body functional limitations.

We also found entirely null associations between having an adult child in the US and physical functioning for men. One possible explanation is that men in the MHAS had, on average, higher incomes and wealth compared to women – and over two-thirds reported at baseline that they still worked. Migrant remittances may have therefore had less of an impact on poverty alleviation, access to health care, or other factors that might have contributed to improved physical health for men with versus without migrant children. Moreover, given that men were more likely to continue to work, any financial resources gained from migrant children may not have effectively freed up time for health-promoting activities (e.g. sleep, social activities).

Finally, having an adult child in the US was associated with a substantially higher prevalence of unmet needs for assistance with basic or instrumental activities of daily living for the subsample of respondents reporting at least one need for assistance. These findings may be somewhat surprising, given that the majority of respondents reported having at least one adult child living in the same household. Respondents otherwise had what appeared to be relatively robust family and community networks, with large average family sizes and high rates of marital status. On the other hand, these summary statistics may not reflect substantial heterogeneity in the location of these family members as well as their availability to provide care to older adult parents. The out-migration of one or more adult children may have shifted the entire distribution of labor within the household, leaving fewer family members to cover care needs for older adults as well as any young children that needed assistance. Moreover, co-residing spouses may not universally be able to provide care if they are also managing their own physical or cognitive impairments. These findings regarding unmet needs correspond with previous work²⁵ using the baseline and two-year follow-up waves of the MHAS, which found that among older Mexican adults with any need for assistance, those with non-migrant children reported receiving 20.6 hours of care per week compared with 12.4 hours per week of care for those who had migrant children.

We note some discordance in associations observed by study wave for men. The relatively large association between having an adult child and unmet needs for care among men at the 11-year follow-up wave was not observed in the 2-year follow-up wave. This discrepancy could suggest that only the long-term, cumulative presence of an adult child in the US was associated with unmet needs for men. It could also have been that the influence of having an adult child in the US was only meaningfully associated with unmet needs for men in the cohort as they reached older age.

The results related to unmet needs could have substantial policy implications. In combination with prior findings of reduced overall time contributions to elderly parents of migrant children,²⁵ these findings suggest that older adults should not be expected to unilaterally benefit from the out-migration of adult children – and family members who remain in place may not be able or available to cover the full range of care needs for older adults in need of assistance. This finding is particularly concerning given the lack of options for formal long-term assistance for older adults in Mexico,⁵⁷ as well as declines in family size⁵⁸ – possible contributing to greater vulnerability among older adults with needs for care who experience the out-migration of an adult child.

Results should be viewed in light of additional limitations. For one, the estimated strength of the relationship between possible unmeasured confounders and both exposure and outcomes that could reduce observed non-zero risk differences to the null was relatively small. We remain concerned about potential bias due to unmeasured confounding. Potential unmeasured confounders including family or community-level factors (e.g. average health of all family members, community-level socio-economic conditions) may have influenced both migration decisions and health at the individual level. Second, the third follow-up wave took place 9 years after the second follow-up wave. During such a long time between follow-up, some respondents may have had children who migrated to and returned from the US, and we would miss the potential influence of this US migration exposure. On the other hand, the percentage of respondents who reported having at least one adult child in the US remained relatively stable across each of the study waves, tempering concern about dramatic unmeasured shifts in adult child migration status within the study period.

Third, the sample size for analyses of unmet needs are quite small, precluding us from examining further nuance in the observed associations. For example, we examined differences in the relationship between having an adult child in the US and physical functioning by the gender of the migrant child, finding largely similar patterns as those reported for primary analyses (eAppendix Tables 5 and 6). The analytic sample was too small to pursue these gender-stratified analyses for the outcome of unmet needs for care. Finally, we acknowledge that future work should consider examining change or trajectories of physical functioning outcomes to further strengthen evidence on causality.

Despite these limitations, the results make important substantive contributions by examining longitudinal associations between having an adult child migrant and critical outcomes for population aging. The analyses also offer methodologic advantages over prior studies by using a doubly robust estimation approach to examining longitudinal relationships, appropriately addressing sample attrition, and accounting for time-varying covariates -- including time-varying covariates affected by prior exposure.

While out-migration to the US has fallen dramatically,⁵⁹ Mexico continues to experience a rapidly aging population in a context in which there is no legal right to formal long-term care services.² Our most important finding suggests that having an adult child migrant was associated with a higher prevalence of unmet caregiving needs for older Mexican adults who had needs for care. Older adults with care needs who have migrant family members might be targeted by efforts to provide formal long-term services and supports in Mexico. Future

research might extend this work to understand whether these findings generalize to countries with distinct demographic trends and old-age policy environments.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1.
Directed Acyclic Graph Guiding Longitudinal Analyses of the Association between Adult Child US Migration Status Physical Functioning, and both Time-Varying and Time-invariant Covariates

Figure 2.

Marginal risk differences in the expected prevalence of 1 unmet need with an activity or independent activity of daily living at each time point (t) given counterfactual outcomes of having at least one adult child in the US versus having no children in the US at t plus all prior t s, restricted to respondents with need for assistance with at least one activity or independent activity of daily living (1200 women and 1225 men at baseline).

Table 1. Baseline (2001) characteristics for Mexican adults > 50 years with at least one living child^a

	Women	Men
<i>N</i>	6374	5432
<i>Outcomes</i>		
Number of ADLs and/or IADLs, range (0–10), mean (SD) ^a	0.53 (1.51)	0.52 (1.37)
1 ADL or IADL, n (%)	1200 (18.83)	1225 (22.55)
Any unmet need, n (%) ^b	725 (60.00)	559 (45.63)
Number of lower-body functional limitations, range (0–7), mean (SD)	2.32 (2.25)	1.16 (2.04)
1 lower-body functional limitation, n (%)	4389 (68.86)	2820 (51.91)
<i>Exposure</i>		
At least one child in US, n (%)	1532 (24.04)	1237 (22.77)

Source: Mexican Health and Aging Study.

Notes:

^a. Activities of daily living (ADLs) were measured as needs for assistance (because of a health condition) with walking across a room, getting in and out of bed, eating, bathing, toileting, or dressing; instrumental activities of daily living (IADLs) were measured as needs for assistance (because of a health condition) with managing money, taking medications, preparing a hot meal, or shopping for food

^b. Number and percent of respondents with unmet needs calculated only for respondents who reported 1 ADL or IADL.

Table 2.

Marginal risk differences in estimated physical functioning outcomes for Mexican adults 50 years with at least one adult in the US versus no adult children in the US

	Estimated difference in the prevalence of > 1 lower-body functional limitation ^a			Estimated difference in average lower-body functional limitations (range: 0–7)			Estimated difference in the prevalence of > 1 ADL/IADL			Estimated difference in average ADLs/IADLs (range: 0–10)		
	Marginal RD	95% CI		Marginal RD	95% CI		Marginal RD	95% CI		Marginal RD	95% CI	
Women (n=6374)												
2001	0.02	(-0.01, 0.04)		0.14	(0.03, 0.26)		0.01	(-0.03, 0.01)		0.02	(-0.06, 0.09)	
2003	-0.01	(-0.04, 0.02)		-0.14	(-0.26, -0.01) ^c		-0.03	(-0.05, -0.01) ^d		-0.08	(-0.16, -0.00) ^e	
2012	0.04	(0.01, 0.06) ^b		0.05	(-0.11, 0.21)		-0.02	(-0.06, 0.01)		-0.01	(-0.15, 0.13)	
Men (n=5432)												
2001	0.03	(-0.01, 0.06)		0.10	(-0.02, 0.22)		0.00	(-0.02, 0.03)		0.02	(-0.09, 0.14)	
2003	-0.01	(-0.04, 0.03)		-0.02	(-0.15, 0.12)		0.02	(-0.01, 0.05)		0.06	(-0.08, 0.20)	
2012	-0.01	(-0.05, 0.03)		0.01	(-0.17, 0.20)		0.01	(-0.03, 0.05)		-0.01	(-0.19, 0.16)	

Source: Mexican Health and Aging Study, 2001 – 2012.

Notes:

^a Measure of lower-body functional limitations was created from items regarding perceived difficulty with 7 different tasks (e.g. sitting, walking one or several blocks, climbing one or several flights of stairs, stooping, or kneeling). An item about perceived difficulty running a mile was excluded from this version of the outcome

^b e-value, or minimum strength of association that an unmeasured confounder would have to have between treatment and outcome (on the risk ratio scale) necessary to reduce observed risk differences to the null (assuming that those associations are of identical size) e-value = 1.27 (lower bound of 95% CI: 1.12)

^c e-value = 1.33 (lower bound of 95% CI: 1.00)

^d e-value = 1.58 (lower bound of 95% CI: 1.12)

^e e-value = 1.31 (lower bound of 95% CI: 1.00).

Table 3.

Marginal difference in the expected prevalence of reporting at least one unmet need with activities or independent activities of daily living for Mexican adults 50 years old with at least one adult migrant child versus no migrant children

Women (n=1208)		
	Marginal RD	95% CI
2001	0.04	(-0.02, 0.10)
2003	0.13	(0.04, 0.21) ^a
2012	0.07	(-0.02, 0.15)
Men (n=1225)		
	Marginal RD	95% CI
2001	0.00	(-0.05, 0.06)
2003	-0.02	(-0.11, 0.07)
2012	0.08	(0.00, 0.16) ^b

Source: Mexican Health and Aging Study, 2001 – 2012. Note: Analyses restricted to respondents who reported > 1 ADL/IADL in a given wave

Notes:

^a. e-value, or minimum strength of association that an unmeasured confounder would have to have between treatment and outcome (on the risk ratio scale) necessary to reduce observed risk differences to the null (assuming that those associations are of identical size) = 1.68 (lower bound of 95% CI: 1.33)

^b. e-value: 1.56 (lower bound: 1.42).